Locomarine™

YACHT ROUTER

MOBILE EXPANDER

Installation Manual

version 1.0

Read carefully.

For better understanding check video tutorials on our website.

Register your product for software update notifications.

Thank you.

Contents

1. COPYRIGHT NOTICE 4
2. RoHS COMPLIANT 4
3. INTRODUCING YACHT ROUTER SOLUTION 4
4. DISCLAIMER AND WARNING 4
5. SAFETY AND HAZARD 5
6. SAFETY INSTRUCTION 6
7. ABOUT MOBILE EXPANDER 7
8. FEATURES 7
9. SPECIFICATIONS 7
9.1. WAN, LAN, Backbone networks 7
9.2. Extenders, Expanders, Controller support 7
9.3. Vessel-to-Shore WIFI booster 7
9.4. Client-to-Vessel WIFI 7
9.5. Mobile network 8
9.6. Power, environment and dimensions 8
9.7. Software features 8
9.8. Cloud Service 8
10. WHAT IS IN THE PACKAGE 9
11. MOBILE EXPANDER INTRODUCTION 10
12. INSTALLATION INSTRUCTIONS 11
12.1. Mobile Expander compatibility with different Yacht Router models 11
12.2. Connecting Mobile Expander to Yacht Router Micro 12
12.3. Connecting Mobile Expander to Yacht Router Mini 13
12.4. Connecting Mobile Expander to Yacht Router Standard 14
13. LOCOMARINE LIMITED FACTORY WARRANTY 15
14. DECLARATION OF CONFORMITY 15
15. FCC INTERFERENCE STATEMENT 15
16. INDUSTRY CANADA NOTICE TO USERS 16

1. COPYRIGHT NOTICE

Locomarine d.o.o. reserves the rights to alter the products described in this manual at any time without prior notice. This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer. Information provided in this manual is intended to be accurate and reliable. However, Locomarine d.o.o. assumes no responsibility for use of this manual, nor for any infringements upon the rights of third parties, which may result from such use.

2. RoHS COMPLIANT

Mobile Expander complies with the Restriction of Hazardous Materials (RoHS) Directive. This means that all components used to build Mobile Expander are RoHS compliant. The RoHS Directive bans placing on the EU market new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

3. INTRODUCING YACHT ROUTER SOLUTION

Mobile Expander product is part of Yacht Router network solution. Mobile Expander cannot operate without Yacht Router. Yacht Router is a complete network infrastructure solution for yacht or boat of any size. Yacht Router devices will help you to easily install, setup and control Internet connection on your yacht. The most important part of Yacht Router solution is the software which controls complete system. It is designed by professionals specialized in yacht communication systems in collaboration with experienced yacht captains. The result is a system that is simple to operate, maintain and control. Underneath simple touch user interface, Yacht Router is a solution with an industry level of reliability, performance and unprecedented level of security.

4. DISCLAIMER AND WARNING

The contents of this manual are well prepared by Locomarine d.o.o.
While we try to improve our equipment at all times, Locomarine d.o.o. shall incur no liability based on contents, updates or modification of the contents, or the lack of contents in this manual.

Because of the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e, have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Yacht Router and Mobile Expander are used in a normal manner with a well-constructed network, the Yacht Router device should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Locomarine d.o.o. and its affiliates accept no responsibility for damage of any kind resulting from delays or errors in data transmitted or received using the Yacht Router and Mobile Expander devices, or for failure of the Yacht Router and Mobile Expander devices to transmit or receive such data.

The equipment said in this manual must only be used for what it was designed.

Improper operation or installation may cause damage to the equipment or personal injury. Locomarine d.o.o. will not incur any liability of equipment damage or personal injury due to improper use or installation of the equipment. It is strongly recommended to read this manual and the following safety instructions before proceeding to installation or operation.

5. SAFETY AND HAZARD

Do not operate your Yacht Router with Mobile Expander:

- In areas where blasting is in progress.
- Where explosive atmospheres may be present including refuelling points, fuel depots, and chemical plants.
- Near medical equipment, life support equipment, or any equipment which may be susceptible to any form of radio interference.

In such areas, the Yacht Router and Mobile Expander **MUST BE POWERED OFF**. Otherwise, the Yacht Router and Mobile Expander can transmit signals that could interfere with this equipment.

In an aircraft, the Yacht Router and Mobile Expander **MUST BE POWERED OFF**. Otherwise, the Yacht Router and Mobile Expander can transmit signals that could interfere with various on-board systems and may be dangerous to the operation of the aircraft or disrupt the cellular network. Use of cellular and WIFI equipment in an aircraft is illegal in some jurisdictions. Failure to observe this instruction may lead to suspension or denial of cellular services to the offender, or legal action or both.

Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. The Yacht Router and Mobile Expander may be used normally at this time.

IMPORTANT: Exposure to Radio Frequency Radiation.
63 cm minimum distance has to be maintained between the antenna and the occupational user and 142 cm to general public. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

List of approved antennas:
Omni Directional (pole), model Locomarine MOB 5

WARNING: It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply); only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.

6. SAFETY INSTRUCTION

ELECTRICAL SHOCK HAZARD: Do not open enclosure of the equipment if you are not qualified to do it.

TURN OFF THE POWER IMMEDIATELY IF WATER LEAKS INTO THE EQUIPMENT OR OBJECT DROPS INTO THE EQUIPMENT:
Continue operating the equipment could cause electrical shock or fire. Contact your nearest distributor or dealer for service.

DO NOT DISASSEMBLE THE EQUIPMENT OR MODIFY THE EQUIPMENT: Improper disassemble or modification could cause electrical shock, fire, or personal injury.

AVOID OPERATING THE EQUIPMENT WITH WET HANDS: Electrical shocks could be resulted if operating with wet hands.
USE PROPER FUSE: Damage to the equipment or fire could be resulted if using improper fuse.

TURN OFF THE POWER IMMEDIATELY IF THE EQUIPMENT IS EMITTING SMOKE OR FIRE: Continue operating the equipment could cause electrical shock or fire. Contact your nearest distributor or dealer for service.

DO NOT PLACE ANY LIQUID-FILLED CONTAINER ON TOP OF THE EQUIPMENT.

7. ABOUT MOBILE EXPANDER

Mobile Expander is a device that will expand Yacht Router with additional mobile network modem. It is designed for vessels that are cruising in areas with different mobile network bands. In combination with Yacht Router you will get worldwide coverage for almost all available mobile network bands. Mobile Expander is perfect solution for blue-water cruisers circumnavigating the World. Mobile Expander can also be useful on mid-sized yachts with Yacht Router Mini or Standard in situations when you want to use separate SIM cards for different Vessel Networks (e.g. Owner and Crew).

8. FEATURES

- High power 4G/3G/2G module (30+ Nautical miles[1])
- Compatible with all Yacht Routers models (except Pro)
- Available as Americas and Europe/Africa/Asia/Oceania version
- Online Remote Support
- Wide range DC power input (10-30 V)

9. SPECIFICATIONS

9.1. WAN, LAN, Backbone networks

Ethernet WAN ports: not available
Ethernet LAN ports: not available
Backbone LAN ports: 1
Dedicated Mobile Expander Pro port: not available
Max. data rate on WAN/LAN/Backbone (per port): 100 Mbps

9.2. Extenders, Expanders, Controller support

WIFI Extender support: no
Max. number of supported WIFI Extenders: not available
Mobile Expander support: no
Mobile Expander support: no
Touch Screen Controller support: no
PoE injector power outputs: not available

9.3. Vessel-to-Shore WIFI booster

Not available.

9.4. Client-to-Vessel WIFI

Not available.

---

1 Achieved with 9dBi outdoor antenna and VIP mobile provider. As actual range depends on many factors Locomarine d.o.o. DO NOT guarantee specified range of connectivity.

9.5. Mobile network

Integrated modems: 1
Europe/Africa/Asia/Oceania modem:
LTE freq. (MHz): 800 (B20), 900 (B8), 1800 (B3), 2100 (B1), 2600 (B7)
WCDMA freq. (MHz): 900 (B8), 2100 (B1)
GSM/GPRS/EDGE freq. (MHz): 900, 1800, 1900
Americas modem:
LTE freq. (MHz): 700 (B17), AWS (B4), 2100 (B1)
WCDMA freq. (MHz): 800 (B6), 850 (B5), 1900 (B2), 2100 (B1)
GSM/GPRS/EDGE freq. (MHz): 850, 900, 1800, 1900
Max. download rates (Mbps): 100
Max. upload rates (Mbps): 50
Max. transmit power in LTE/4G (dBm): 24
Max. transmit power LTE/4G (mW): 250
Max. transmit power in WCDMA (dBm): 24
Max. transmit power WCDMA (mW): 250
Max. transmit power in GSM/GPRS/EDGE (dBm): 33
Max. transmit power GSM/GPRS/EDGE (mW): 2000
SIM card slots: 1
SIM card size: standard GSM (ID-000)
Sensitivity of included antenna (dB): 2
Antenna connector type (on device): N-type female

9.6. Power, environment and dimensions

DC power supply input range (V): 10-30
AC power supply input range (V): not available
Automatic switching AC-DC power controller: not available
Regulated DC power outputs: not available
Max. power consumption at 12 V (W, without WIFI Extenders): 14
Operating temperature range (°C): -10 to +60
Operating humidity range (%, non-condensing): 5-95
Enclosure material: aluminium
Enclosure mount type: wall
IP Protection: IP50
Dimension (mm, WxDxH, without antennas): 150 x 204 x 52

9.7. Software features

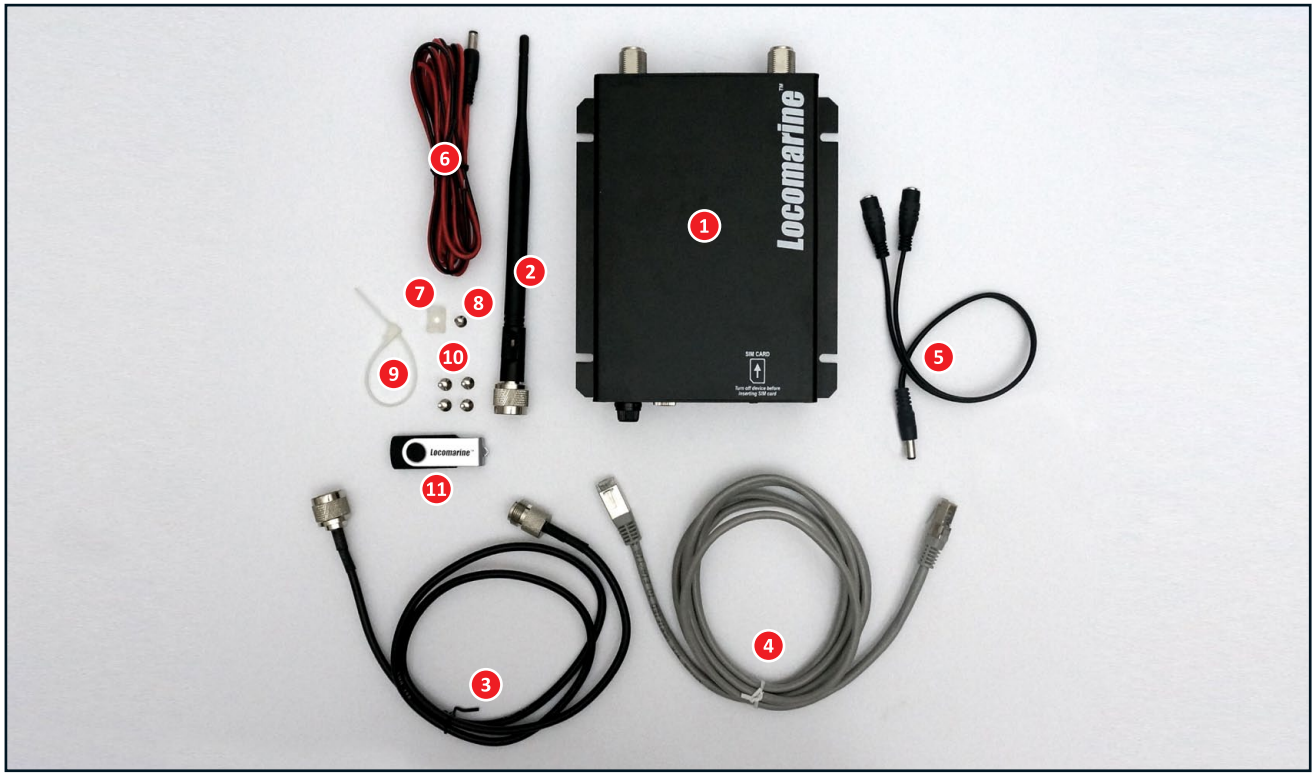
Hotspot: not available
Hotspot supported on Client-to-Vessel WIFI networks: not available
WAN Auto-switching: not available
Online Remote Support: yes
Selectable WAN source for each vessel network: not available
Detailed usage statistics: yes
Flexible assigning of LAN ports to vessel WIFI networks: not available
Customizable WIFI power output: not available
Mobile Network Bonding: no

9.8. Cloud Service

Available remote user accounts for private access: not available
Number of on-board devices reachable through public access: not available
Number of on-board devices reachable through private access: not available

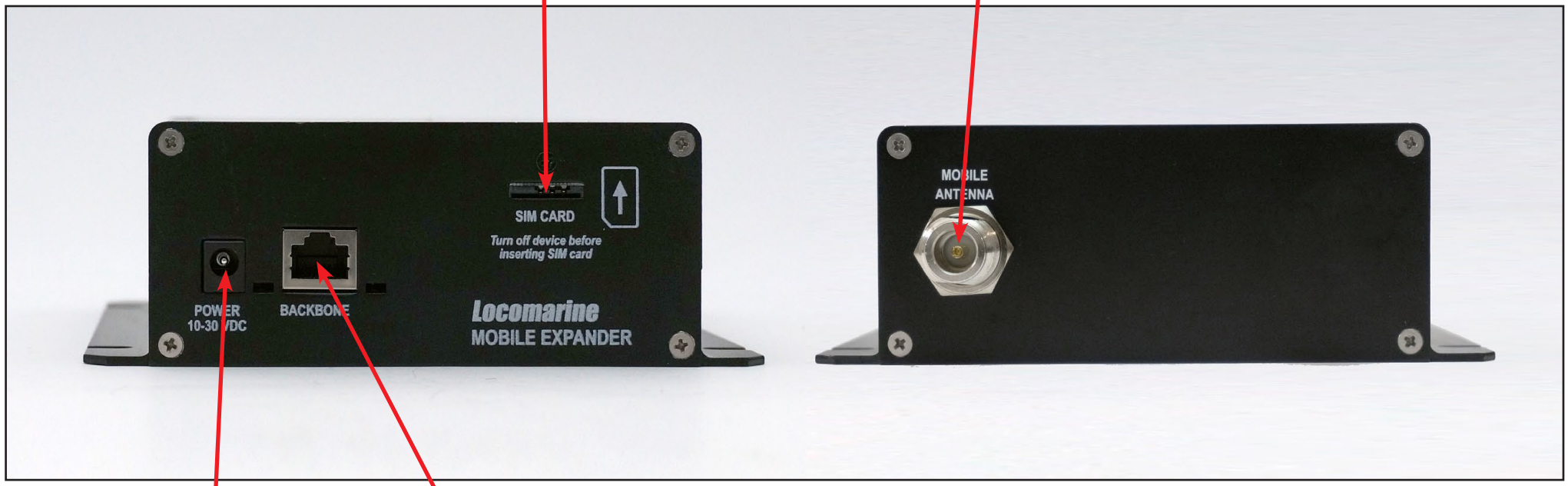
10. WHAT IS IN THE PACKAGE

When shipped, all devices are wrapped in plastic bags that protect them from humidity. Devices are then placed into a cardboard box. A bag containing accessory items is placed inside the box too. List of all included components is enclosed in the package.



1 - Mobile Expander, LYR-MS03(-A), 1 pcs
2 - Locomarine MOB 5 antenna (2G/3G/4G, swivel, indoor), 4G-A-01, 1 pcs
3 - Antenna extension cable 1m (N-type female/male), WLEC-01, 1 pcs
4 - CAT5 cable (with connectors, 2m), CAT5-02, 1 pcs
5 - DC power cable splitter (1 male to 2 female), PSP-02, 1 pcs
6 - DC power cable with connector 2 m, PWC-01, 1 pcs
7 - Locomarine WIFI/MOB antenna mount, AC-SM-01, 1 pcs
8 - Antena mount screw, AC-SM-02, 1 pcs
9 - Antenna fixing tie, RFT-03, 1 pcs
10 - Fixing screw, FSC-01, 4 pcs
11 - Manuals & control software (on USB stick), QIG-00, 1 pcs

11. MOBILE EXPANDER INTRODUCTION


SIM card slot
Mobile antenna connector
SIM CARD
Turn off device before inserting SIM card
POWER 10-30 VDC
BACKBONE
Locomarine
MOBILE EXPANDER
MOBILE ANTENNA
DC power socket
BACKBONE port for internal communication between Yacht Router devices (WIFI Extender, LAN Expander, Booster etc) via Backbone network.

12. INSTALLATION INSTRUCTIONS

Install Mobile Expander in a dry indoor space that will meet Operating environment range specifications (chapter 9.6 on page 8). Follow the installation procedure as specified in this chapter.

12.1. Mobile Expander compatibility with different Yacht Router models

Mobile Expander is possible to connect to all Yacht Router models **except** Yacht Router Pro.

IMPORTANT: You cannot connect Mobile Expander to Yacht Router Pro. It is possible to connect only one Mobile Expander to each Yacht Router.

12.2. Connecting Mobile Expander to Yacht Router Micro

To connect Mobile Expander to Yacht Router Micro you will need additional LAN Expander. Connect Mobile Expander to Yacht Router Micro as it is shown on the following photo.

WARNING: **BACKBONE** PORT ON MOBILE EXPANDER IS NOT POWER OVER ETHERNET (PoE) CAPABLE. DO NOT PLUG PoE ETHERNET CABLE TO THIS PORT AS IT WILL DAMAGE DEVICE AND WILL VOID THE WARRANTY.

IMPORTANT: You can connect Mobile Expander and WIFI Booster to any LAN port (2-4) on LAN Expander as by default all ports are set as **BACKBONE**. If you want to reconfigure **LAN ports** to become **VESSEL NETWORK 1** port contact Locomarine Support or your local dealer.

12.3. Connecting Mobile Expander to Yacht Router Mini

Connect Mobile Expander to Yacht Router Mini as it is shown on the following photo.

NOTE 1:
You can plug LAN connector from PoE injector for Mobile Expander into **VESSEL NETWORK 1** or **VESSEL NETWORK 2**.

NOTE 2:
You can plug DC connector from PoE injectors to any **DC OUT** socket on Yacht Router. All **DC OUT** sockets are internally connected and protected with single DC fuse (rated 1.5 A).

WARNING: **BACKBONE** PORT ON MOBILE EXPANDER IS NOT POWER OVER ETHERNET (PoE) CAPABLE. DO NOT PLUG PoE ETHERNET CABLE TO THIS PORT AS IT WILL DAMAGE DEVICE AND WILL VOID THE WARRANTY.

IMPORTANT: Once you connect Mobile Expander as it is described you will have to contact Locomarine Support or your local dealer to reconfigure **VESSEL NETWORK 1** or **VESSEL NETWORK 2** port to become **BACKBONE** port.

12.4. Connecting Mobile Expander to Yacht Router Standard

Connect Mobile Expander to Yacht Router Standard as it is shown on the following photo.

NOTE 1:
You can plug LAN connector from PoE injector for Mobile Expander into any **BACKBONE** port on Yacht Router.

NOTE 2:
You can plug DC connector from PoE injectors to any **DC OUT** socket on Yacht Router. All **DC OUT** sockets are internally connected and protected with single DC fuse (rated 1.5 A).

WARNING: **BACKBONE** PORT ON MOBILE EXPANDER IS NOT POWER OVER ETHERNET (PoE) CAPABLE. DO NOT PLUG PoE ETHERNET CABLE TO THIS PORT AS IT WILL DAMAGE DEVICE AND WILL VOID THE WARRANTY.

13. LOCOMARINE LIMITED FACTORY WARRANTY

Locomarine manufactures marine electronic products which are marketed and supported worldwide via the Locomarine distributor, dealer and partner network. Each and every Locomarine distributor, dealer and partner is committed to service and support the products in accordance with the market's needs and requirements. In addition, the Locomarine distributor, dealer and partner networks are obliged to support the products irrespective of who sold and installed the product. Locomarine Limited Factory Warranty for Yacht Router products can be downloaded from www.yachtrouter.com under Support/Download section.

14. DECLARATION OF CONFORMITY

Hereby, Locomarine d.o.o. declares that this Mobile Expander product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

15. FCC INTERFERENCE STATEMENT

This FCC statement is related to Yacht Router Micro model LYR-CB-P-A for USA/Canada market.

This device contains FCC ID: N7NMC7700, TV7RB912G-2HPND. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device and its antennas must not be co-located or operated in conjunction with any other antenna or transmitter.

IMPORTANT: Exposure to Radio Frequency Radiation.
63 cm minimum distance has to be maintained between the antenna and the occupational user and 142 cm to general public. Under such configuration, the FCC radiation exposure limits set forth for a population/uncontrolled environment can be satisfied.

List of approved antennas:
Omni Directional (pole), model Locomarine MOB 5

Antenna Installation. WARNING: It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply); only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.

16. INDUSTRY CANADA NOTICE TO USERS

Notice: To satisfy IC RF exposure requirements for mobile and base station transmission devices, a separation distance of 63 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Avis: Pour répondre à la IC d'exposition pour les besoins de base et mobiles dispositifs de transmission de la station, sur une distance de séparation de 63 cm ou plus doit être maintenue entre l'antenne de cet appareil et les personnes en cours de fonctionnement. Pour assurer le respect, l'exploitation de plus près à cette distance n'est pas recommandée. L'antenne (s) utilisé pour cet émetteur ne doit pas être co-localisés ou fonctionner conjointement avec une autre antenne ou transmetteur.